

REMARKS

Claims 1-12 are pending in this application. By this Amendment, claims 1, 3-5 and 11 are amended to provide antecedent basis for recited features and improve the grammar. No new matter is added.

I. The Drawings Comply With 37 C.F.R. §1.84

The Office Action objects to the drawings under 37 C.F.R. §1.84(b)(5) for not showing reference character S220. By this Amendment, Fig. 4 is amended as suggested. Applicants request withdrawal of the objection.

II. Objections to the Specification

The Office Action objects to the title as not being descriptive. By this Amendment, the title is amended as suggested. Applicants request withdrawal of the objection.

The Office Action objects to the specification because reference character 26 is associated with both the cooling device and the blower. By this Amendment, paragraph [0022] is amended to correct the error. Applicants request withdrawal of the objection.

III. The Claims Comply With 35 U.S.C. §112

The Office Action rejects claims 1, 4 and 11 under 35 U.S.C. §112, second paragraph, as indefinite for not providing antecedent basis for "the internal temperature." By this Amendment, the claims are amended to overcome the rejection. Applicants request withdrawal of the rejection.

IV. The Claims Are Patentable Over the Applied References

The Office Action (1) rejects claims 1-10 under 35 U.S.C. §102(b), or in the alternative, under 35 U.S.C. §103(a), over U.S. Patent Publication No. 2001/0053469 to Kobayashi et al. (Kobayashi); and (2) rejects claims 11 and 12 under 35 U.S.C. §103(a) over Kobayashi in view of U.S. Patent Publication No. 2003/0029179 to Vander Woude et al. (Vander Woude). Applicants respectfully traverse the rejections.

Kobayashi discloses an apparatus GS1 to warm a fuel cell 1 (Fig. 1; paragraph [0051]). The apparatus GS1 comprises thermo-sensors T₁, T₂, T₃, airometer (flow sensor) Q, and humidity sensor H (paragraph [0055]). The thermo-sensor T₁ detects the temperature of the supply gas A at the inlet of fuel cell 1 of the cathode pole side (Fig. 1; [0064]), thermo-sensor T₂ detects the temperature of the exhaust air Ae at the outlet of the compressor 24 (paragraph [0065]), and thermo-sensor T₃ detects the temperature of the exhaust air Ae at the outlet of the fuel cell 1 at the cathode pole side (Fig. 1; paragraph [0066]). A controller 4 receives signals from the sensors T₁, T₂, T₃, Q, and H and controls the flow amount, temperature, and humidity of supply air A supplied to the inlet of fuel cell 1 at the cathode pole side (paragraph [0073]).

The operation of apparatus GS1 is shown in the flowchart of Fig. 4. In operation, if the temperature sensed by thermo-sensor T₃, is greater than or equal to 20°C, then the apparatus GS1 switches to normal mode (steps S4 and S5). However, there are two fail-safe paths shown in Fig. 4. If the temperature sensed by thermo-sensor T₃ is less than 20°C (step S4), the temperature sensed by thermo-sensor T₁ is greater than or equal to 75°C (step S6 and S13), and if the temperature thereafter increases (step S16), an alarm lamp is lit (step S19). If the temperature sensed by thermo-sensor T₃ is less than 20°C (step S4), the temperature sensed by thermo-sensor T₁ is less than to 60°C (step S6), the temperature sensed by thermo-sensor T₂ is greater than 130°C (step S9), and temperature sensed by thermo-sensor T₂ thereafter increases (step S12), then the alarm lamp is lit (step S19).

Regarding independent claims 1, 4 and 11, Kobayashi fails to disclose (1) "a temperature-maintenance operation controller that ... while said fuel cell system is not operating, executes temperature-maintenance operation of said fuel cell" (claims 1 and 4); and (2) an abnormality detection unit (or step of determining whether an abnormality has

occurred) "that determines whether a detected abnormality regarding said fuel cell operating temperature has occurred in said temperature detector" (claims 1, 4 and 11).

Kobayashi fails to disclose feature (1) above because Kobayashi discloses operation under either a warm-up mode or a normal mode, not in a maintenance mode.

Kobayashi fails to disclose feature (2) above because Kobayashi discloses abnormality determination on the basis of the results provided by, for example, thermo-sensors T_2 and T_3 . However, Kobayashi does not disclose detecting an abnormality in thermo-sensors T_2 or T_3 , as recited in the claims. Kobayashi's system operates on the premise that the thermo-sensors T_1 , T_2 , and T_3 are operating properly.

Vander Woude is directed to a cryogenic temperature control apparatus and method and is cited for disclosing the detection of failed temperature sensors. However, Vander Woude does not suggest modifying Kobayashi to overcome the deficiencies of Kobayashi discussed above.

For the foregoing reasons, Applicants request withdrawal of the rejections.

V. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:

Replacement drawing sheet

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